

JPRS 77271

29 January 1981

# Worldwide Report

EPIDEMIOLOGY

No. 215



FOREIGN BROADCAST INFORMATION SERVICE

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VIRAL DISEASES IN THIRD WORLD COUNTRIES STILL RAMPANT

Paris LE MONDE in French 31 Dec 80 pp 20-21

[Article by Jean-Yves Nau: "Viral Sicknesses in Third World Countries"]

[Text] "Smallpox is dead," according to the May issue of SANTE DU MONDE, the magazine of WHO. The eradication of this disease, announced on 9 December 1979 and officially confirmed at Geneva on 8 May 1980, was the result of a real "war" against the smallpox virus in which the WHO had used a considerable amount of energy and money over a period of 13 years (almost \$300 million).

Can we today reasonably look forward to the decline in the rate or perhaps even eradication of infectious diseases which continue to prevail in an endemic form in most countries of the Third World? The official epidemiological data frequently underestimate the real rate of these diseases and what little information they yield does not properly express the considerable importance which must be assigned to them. Each year, measles, polio, certain diarrhea and respiratory disease viruses kill or irremediably handicap millions of children.

The difficulties encountered in coming up with a precise "laboratory" diagnosis, the almost general absence of vaccination and the major role played by malnutrition are elements which, in the countries of the Third World, on various levels slow down the implementation of an effective control strategy. Viral infections in man undoubtedly cannot be divorced, in terms of their rate and their consequences from diseases of a bacterial or parasite origin. There are two major points which however must be underscored: The absence of effective antiviral medications and the multiplicity of viral targets in the world of the living.

The field of study of virology by far goes beyond the area of human pathology. The problems arising from the "culturing" of animal and vegetable organisms through viruses, to quote from Dr A. A. Quenum, regional director of the WHO for Africa, constitute "a challenge facing the health service and the research and education institutions." Viral epidemics among animals and plants abruptly and considerably reduce protein production and thus accentuate malnutrition and considerably add to the economic difficulties of the Third World countries.

In spite of the broad range of the phenomenon and the common identity of the pathogenic agent, there are few scientific manifestations which have so far been developed to give us an overall picture of viral diseases and their consequences. This only underscores the originality of the International Conference on the Impact of Virus



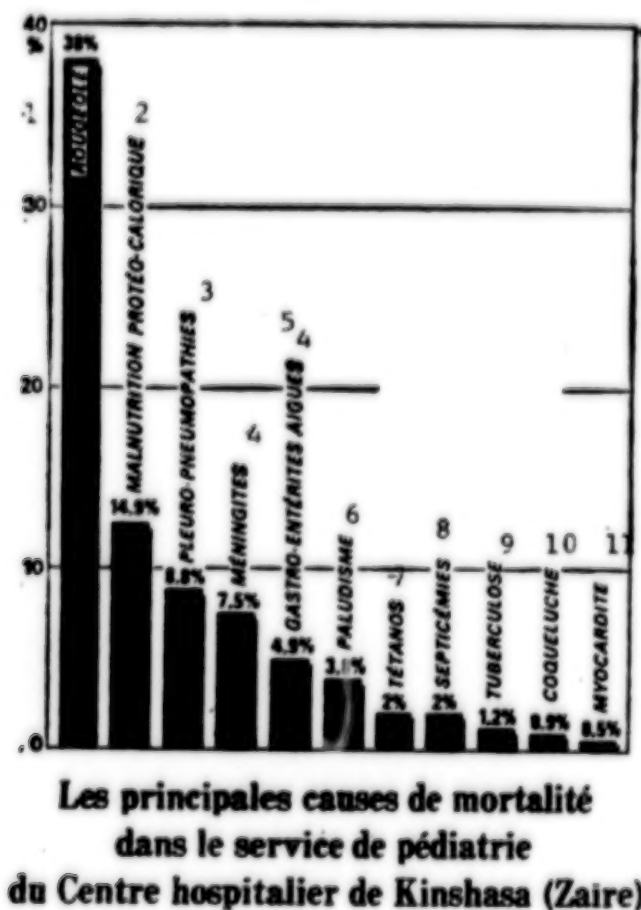
Diseases on the Development of the African and Middle Eastern Countries which met between 1 and 6 December in Nairobi, Kenya, upon the initiative of Professor Edouard Kurstak (School of Medicine, Montreal, Canada) with more than 200 virologists from 53 countries, including Israel and South Africa, in attendance.

The vast range of antiviral vaccinations is sufficiently broad to make it possible today to check most of the endemic or epidemic phenomena. Right now however, looking at the example of the African Continent alone, these vaccinations are almost nonexistent.

The first obstacle undoubtedly is represented by the cost of the vaccines produced for all the industrialized countries. The existence of local health facilities on the other hand is an indispensable condition which is not always met. Another fact must likewise be considered: The particular characteristics--as yet little known--of viral epidemiology in the countries of the Third World.

#### A Multifaceted Scourge

On the African Continent, the measles virus is a killer. At the Kinshasa, Zaire, Hospital Center, in the pediatric ward, directed by Professor Utshu Omanga, 15 percent of the children are hospitalized for measles. Among them, one out of every four will die as a result of this infection. In that ward, measles represent the first cause of death and the second cause of admission (see the chart below). Between January 1976 and December 1978, 674 cases were diagnosed and 95 percent of the children were between the ages of 7 months and 3 years.



Main Causes of Mortality in Pediatric Ward, Hospital Center, Kinshasa, Zaire.  
Key: 1--Measles; 2--Protein-Caloric Malnutrition; 3--Pleuro-pneumopathies; 4--Meningitis Cases; 5--Acute Gastroenteritis Cases; 6--Malaria; 7--Tetanus; 8--Septicemias; 9--Tuberculosis; 10--Whooping Cough; 11--Myocarditis.

In many of the infectious diseases, the African child constitutes a potential target the moment the protected antibodies--transmitted to it by the mother during the 9 first months of its life--disappear from its serum. For measles, however, the drama does not develop just by chance and Professor Omanga emphasizes that "94 per cent of the deaths recorded involve undernourished children." The same finding was made at the hospital center in Kigali, Rwanda, where 480 out of 2,364 children hospitalized for measles died between July 1975 and December 1978.

In Zaire, the latest measles vaccination drive goes back to 1975. During that year, upon government initiative, almost 700,000 children in the capital were immunized. The result was spectacular. "During the first half of 1976," Professor Omanga explained to us, "We had to close the room set aside for measles patients. But starting in July, we were flooded by an epidemic striking all those who had not been vaccinated, to the point where we recorded more than 300 cases per month." No vaccination drive has been conducted since that date.

#### Underestimated Statistics

Children hospitalized with measles presently, at the Kinshasa Hospital Center, are subjected to a two-stage treatment: First of all, restoration of strength and rehydration with food and supportive treatment to prevent followup infections deriving from antibiotics, whenever the hospital has them available.

Measles quite obviously cannot cover all of the cases of viral pathology and health policy problems in Zaire undoubtedly are not exactly the same, in every detail, as those in the other African countries. It is nevertheless true that these few statistics by themselves indicate the difficulties encountered in Africa in the fight against the scourge represented by contagious diseases in general and by viral diseases in particular. There is however one deceptive element: The accuracy of hospitalization and diagnosis records. As a general rule, as a matter of fact, there is nothing in the vast majority cases that would permit us to come up with a figure of the precise rate of the various infectious diseases.

According to WHO officials themselves, the official statistics furnished by health authorities--published periodically--are greatly underestimated. Incomplete and inaccurate, they only give us a very rough picture of the broad range and importance of these diseases. A retrospective survey conducted in just one African hospital, revealed ten times the number of paralytic polio cases than had been reported during 4 years for the entire country.

On top of this insufficient epidemiologic surveillance, we also have the absence of "serological" diagnosis elements. The latter as a matter of fact in most cases is based essentially on symptomatology. Now, the laboratory not only confirmed the diagnosis but almost always makes it possible to indicate the precise type of the pathogenic germ (virus, bacterium, or parasite). Several studies conducted in recent years lead us to assume that, to a great extent, infantile diarrhea cases in



the Third World are of viral origin. In the opinion of Dr Kurstak, diarrhea cases caused by viruses--especially rotaviruses--each year cause 5 million deaths (primarily among children). According to him, we can estimate 750 million cases of these diseases per year, and the main threat from them comes from the severe and rapid dehydration which it causes.

It is the children who pay the heaviest price for these viral diseases. With the exception of measles in a rural environment, which prevail in an epidemic fashion, hitting in one wave all of the unprotected individuals, regardless of their age, the contact with the virus almost always seems to come earlier than in Europe or in North America. Several epidemiological studies made it possible to observe at what moment the antibodies--which are the controls for contamination--appear and they are directed against the polio or type A and B hepatitis viruses. The same phenomenon is found regarding tetanus. "This is why," explains Professor Philippe Maupas (Tours Virology Institute), "it is necessary in Africa to vaccinate as early as possible and to discard the old European concept which states that one does not immunize a child as long as it has antibodies of maternal origin in its serum."

In order to adjust to the realities of the particular area and the African epidemiological characteristics, it is necessary in the same manner to modify the European vaccination schedule and to work out heat-resistant vaccines. Different dosages moreover should make it possible to reduce the number of injections and by the same token the cost of the vaccination drives.

Today, however, the fact remains that the countries of the Third World for the most part neither have nor manufacture vaccines, nor do they conduct systematic vaccination drives. When they do exist, these drives are aimed only at specific areas and are often followed--as shown by the example of Zaire--by infectious outbreaks, something which hardly encourages the government to reinvest in efforts of this type. For 4 years, the WHO has been trying to set up a PEV (expanded vaccination program, today covering six contagious diseases, that is, diphtheria, tetanus, whooping cough, tuberculosis, measles, and polio). "The important thing," says Dr Paul Bres (WHO, Geneva), "is to give the country the ways to build their own vaccination programs themselves. In contrast to the smallpox eradication drive, which was very centralized, we will try to help the developing countries set up their own preventive facilities."

#### The Price To Be Paid

It must be emphasized that the Nairobi Conference was characterized by the desire of some of the participants as soon as possible--perhaps starting in 1981--to establish vaccine production units on African soil. It now seems that positive contacts have been established especially in West Africa. The vaccines would be manufactured according to a technology identical to the one used presently in the industrialized countries, by teams partly made up of African technicians. They would be sold at cost. Such production centers furthermore could serve as accelerated training facilities for African personnel responsible for preventing contagious diseases, diagnosing them (clinically and on the basis of fast laboratory techniques) and determining their specific epidemiological features.

The idea is far from unrealistic. The example of Botswana is a demonstration of this (see below). Considering the current situation, it seems that initiatives of

this type by themselves will enable the countries most directly involved to have effective weapons of prevention. Various improvements remain to be made, especially in a financial manner. The problem is a very current one. If the Third World does not manage rapidly to achieve its own production of vaccines and if the European models of infectious disease prevention are not challenged on that occasion, it is difficult to see how smallpox could not constitute a success, certainly a spectacular one, but one without a tomorrow.

#### The Example of Botswana

The Republic of Botswana, in southern Africa (700,000 inhabitants), covers a territory of 570,000 square kilometers. Almost 30 percent of its foreign exchange revenues come from the sale of beef. In 1979, the beef and meat products export volume came to more than \$1 million. In that country, hoof-and-mouth disease control is one of the main priorities, especially since it has been discovered that the buffalo was a permanent virus carrier there and that it therefore represented a permanent source of infection for beef cattle. Between 1964 and 1977, several foci of hoof-and-mouth disease appeared but it was possible to bring them under control. In 1977, three foci came up almost simultaneously and resisted all attempts at vaccination which were made at that time.

The government of Botswana decided to build an institute for the production of hoof-and-mouth disease vaccines in conjunction with the IFFA (French Institute of Hoof-and-Mouth Disease) at Merieux, and with the help of a subsidy from the EEC. In August 1978, only 6 days after the contract was signed, a modular laboratory was shipped by air from France and set up at the Gaborone site in Botswana. Just 7 weeks later, after the identification of the type of virus responsible for the epidemic, the first lot of vaccines was produced. In 1979, this production came to 100,000 doses per week and that figure was raised to 150,000 in 1980 and after that to 200,000 doses. It seems right now that all of the disease foci have been reached. The construction of an attached production laboratory, which began in March 1980, should--as soon as it has been finished--guarantee an output capacity of 21 million doses partly earmarked for the neighboring countries of Botswana which likewise are concerned with hoof-and-mouth disease.

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BRIEFS

**WATER SAMPLER INNOVATION**--Sydney: Mirko Riha's idealistic approach to give something to humanity has finally paid off. Mr Riha (50), a hydrogeologist from Victoria, was last night named "inventor of the year" on ABC-TV's "The Inventors." He spent five years developing his multi-stage water sampler designed to extract samples of water from different underground pockets at varying levels. His invention, which includes a flexible membrane pump, enables water samples to reach the surface without danger of being exposed to air, and so to pollution. Samples can be analysed on the spot for toxic or non-toxic elements and so eliminate the danger of chemical changes through transportation to laboratories in plastic containers. Mr Riha received a cheque for \$25,000, a crystal trophy and a cheque for \$3000 from the Apex Clubs of Australia to enable him to attend the ninth international exhibition in Geneva. He also received an additional cheque for \$2500--the Project Australia award. Most of his winnings will go to having his invention patented internationally. "To have my device covered overseas, I must have a patent in each country," he said. "I have worked out that it will cost about \$1500 per country." [Text] [Perth THE WEST AUSTRALIAN in English 13 Nov 80 p 39]

**FLU VACCINE STUDY**--Three WA research scientists have been awarded grants totalling more than \$117,000 for studies on influenza vaccines, disease associated with ageing, and auto-immune muscle diseases. Professor John MacKenzie, of the University of WA department of microbiology at Queen Elizabeth Medical Centre, will receive \$44,652 for studies into live and killed influenza vaccine. He said yesterday that it was customary in Australia to use the killed vaccine but this did not necessarily give the best protection. Live vaccine had been used in Britain, New Zealand and Europe. It could be administered by nose drops, the normal route of influenza infection. His studies would look at the effectiveness of both vaccines and why the live vaccine appeared to be more beneficial. [Excerpts] [Perth THE WEST AUSTRALIAN in English 20 Nov 80 p 28]

**NORTHERN TERRITORY TRACHOMA**--Canberra: The Opposition has again urged the Federal Government to do all it can to keep the Northern Territory in the national trachoma campaign. Senator Susan Ryan, who speaks for the Opposition on Aboriginal affairs, said that the Aboriginal Affairs Minister, Senator Peter Beume, should negotiate a reversal of the Northern Territory's decision to pull out of the scheme. The health and general living standards of Aboriginal communities in the Northern Territory were intolerable. [Text] [Perth THE WEST AUSTRALIAN in English 20 Nov 80 p 50]

## PRINCIPAL OBJECTIVES OF 1981 HEALTH PROGRAM CITED

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 27 Dec 80 p 11

[Text] Brasilia bureau--Minister of Health Waldyr Arcoverde announced yesterday that the principal goals of his ministry for the coming year are the prompt establishment--during the first half of the year--of PREV-SAUDE [National Preventive Health Program]; intensification of the communicable disease control and public health vigilance programs; and intensification of the National Blood and Blood Derivatives Program [PRO-SANGUE], PRO-FARMACO and PRO-IMUNO. Plans have also been made for carrying out an extensive program of incentives to promote breastfeeding and a national family planning program to promote paternal responsibility.

Turning to the campaign in behalf of breastfeeding, the minister voiced his concern over the decline in that practice throughout the world and also in Brazil. He said the problem of malnutrition was instrumental in 28 percent of the deaths of infants under 1 year of age in Sao Paulo alone and could be alleviated by means of breastfeeding. Arcoverde said the campaign should emphasize the causes of premature weaning, which according to the minister results from a lack of preparation on the part of the mother, the doctor, and state and local authorities; insufficient opportunities for wet nurses; insufficient support for the mother in the environment in which she lives and works; and the intensive advertising in behalf of processed milk.

The Ministry of Health plans to recommend that doctors refrain from adopting obstetric procedures which inhibit breastfeeding; that they give the mother better preparation in the prenatal, parturition and postpartum periods; that breastfeeding begin immediately following parturition, with the baby at the mother's side rather than in the nursery; that hospital routines meet the needs of the mother and the child; and that the wet nurses be provided with rooms for breastfeeding, day nurseries for their children, and job security.

## Vaccination

The mass vaccination campaign against poliomyelitis will be continued in 1981, and Minister of Health Arcoverde gave assurances that the "national vaccination days" will be repeated every year until effective control of the disease is obtained. "The experience acquired by the Ministry of Health in this field," Arcoverde emphasized, "makes it possible to plan campaigns of the same type for 1981 against diphtheria, whooping cough, tetanus, and especially measles, with the permanent vaccination stations serving to reinforce the mobilization effort of the campaigns."



The activities designed to control malaria, and the campaign against yellow fever, will be still further intensified. A group of Brazilian experts is currently evaluating the special program for the control of schistosomiasis with a view to developing the strategy to be employed in 1981. The main objective is to prevent the geographical spread of the disease by preventing the emergence of new foci outside the endemic area. In the campaign against tuberculosis, the ministry plans to achieve a 5 percent annual reduction in the prevalence of the disease nationwide, primarily by means of outpatient treatment. The program for vaccination of the susceptible population with BCG [*Bacillus Calmette-Guerin*] vaccine will likewise be continued. The overall control of the communicable disease programs next year will be supported by PNEV-SAUDE, which will provide the appropriate infrastructure.

The minister of health said his ministry also plans to modernize next year the system of registration and inspection of medicines, which is the responsibility of the National Secretariat of Public Health Vigilance. The new central laboratory for the control of drugs, medicines and foods will go into operation; it will function as a reference unit and as the primary link in the national network for control of the quality of products which relate to human health. PRO-CONTROLE--the National Program for Control of the Quality of Drugs, Medicines and Foods--is also in the final stage of preparation.

To develop the PRO-FARMACO and PRO-IMUNO programs the Ministry of Health approved extraordinary appropriations from the National Scientific and Technological Development Fund, for a total of 1 billion cruzeiros. These moneys will also begin to be applied next year and should help to improve the nation's technological capability in respect to research, procurement and mass production of immunobiological and pharmaceutical preparations and their corresponding intermediaries and precursors. The National Blood and Blood Derivatives Program will be expanded next year, with the entry into operation of the hemotherapy and hematology centers in Salvador, Sao Luiz, Brasilia and Rio de Janeiro.

"The major objectives of PRO-SANGUE," Arcoverde emphasized, "are to promote the voluntary and altruistic donation of blood, the production and increased clinical use of blood derivatives, and the distribution of these items to the consumer network on a nonprofit basis."

With regard to the operation of the hospitals of the Ministry of Health, the minister wishes to expand the managerial system that has been adopted for the administration of the National Cancer Institute--a system of comanagement exercised by the ministries of Health and Welfare through the instrumentality of the National Secretariat for Special Health Programs and INAMPS [National Institute for Social Security Medical Assistance]. The minister explained that the objective of this comanagement system is to achieve a reduction in the rate of nonoccupancy of the hospital beds existing within the jurisdiction of the Ministry of Health, increase the efficiency of the services offered, and make possible the rational utilization of available financial, material and human resources.

## EXTENT OF MALNUTRITION IN SAO PAULO, NATION REPORTED

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 21 Dec 80 p 24

[Text] Based on his own research, Professor Joao Yunes, instructor in Preventive and Social Pediatrics of the Department of Pediatrics of the School of Medicine of the University of Sao Paulo, has reached the conclusion that malnutrition was one of the 10 principal causes of death in children under 1 year of age during the period 1969-1977. Brazilian nutritionists are accordingly agreed that malnutrition is currently the principal endemic disease in the nation.

Professor Yunes' statement had been preceded by one by another student of national problems, Jaime Lerner, the current mayor of Curitiba, who when testifying in May of this year before the Congressional Investigating Committee on Urban Violence reported that 5 children die every hour (almost 1 per minute) in Brazil from hunger and malnutrition-induced diseases.

Jaime Lerner included other data in his testimony, as for example the fact that 30 million Brazilians live in a state of absolute poverty, 40 million have no electric illumination in their homes, 65 million have no running water, and 32 million are without sanitary facilities. He further stated that there are 2 million abandoned children and that several million Brazilians are surviving with irreversible brain lesions induced by the malnutrition they suffered between birth and 5 years of age.

In Sao Paulo State, malnutrition is increasing among the child population. To combat the disease the State Secretariat for Social Betterment is carrying out a nutrition program (PRO-NUTRI) designed to feed children of from 18 months to 7 years of age. Despite the efforts that have been made, however, the secretariat is faced with a no less serious problem, namely that 6 percent of all Sao Paulo children under 5 years of age exhibit protein and energy deficiencies, hypovitaminosis and various anemias: a circumstance which will determine the growth--by limiting it--of these children, who as adults will attain a height of no more than 1.5 meters.

The problem is equally serious in Sao Paulo Municipality. In 1978--because of disease, malnutrition, an incapacity for assimilation, and other factors--the children of the outlying districts did not begin their studies until 9 years of age. The rate of repetition of a grade--a rate previously estimated by the Municipal Secretariat of Education at 31.32 percent--rose that year to 36 percent. During that year 44,640 students in the municipal educational system were found to be suffering from intestinal parasitosis; 26,922 from anemia; 18,747 from nutritional deficiencies and 89,718 from behavioral disturbances. If this is the case in Sao Paulo, it is therefore not surprising that in Brazil as a whole 70.2 percent of all children under 5 years of age suffer from malnutrition.

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# VIROSIS STRIKES 10 PERSONS IN PARANA

## Official Report

São Paulo O ESTADO DE SÃO PAULO in Portuguese 17 Dec 80 p 12

[Text] From the Curitiba office--The Paraná Secretariat of Health is to issue an official note today to explain the virosis that is affecting the peripheral areas of the municipality of Bocaiuva do Sul, near Curitiba, where 10 persons have been affected from the end of November to the present, with 4 fatal cases. Earlier there will be a meeting of the physicians of the Epidemiological Control Service of the secretariat, the Institute of Legal Medicine, and hospital personnel of the clinics and Oswaldo Cruz, all involved in investigation of the disease.

To reduce the pressures from the press of Curitiba--and from public opinion itself, which is calling for a definition of the case--the secretariat will sponsor a visit this afternoon to the general laboratory of the state, where examinations of the material collected from the residents and small animals of the region are still going on. Then there will be a visit to Bocaiuva do Sul, principally to the place where the families concerned live.

In fact, more precise results will not be known until after the release of the reports of the examinations that are being done in the institutes of Adolfo Lutz in São Paulo and Evandro Chagas in Belém, in 15 to 20 days approximately. Until then --and the technicians themselves admit this--everything will remain in the realm of hypotheses, like that advanced the day before yesterday that the virosis was being transmitted by wood rats. Or that of an IML [Institute of Legal Medicine] that these deaths may have occurred in the same area by mere coincidence.

## Epidemic Denied

São Paulo O ESTADO DE SÃO PAULO in Portuguese 18 Dec 80 p 64

[Text] From the Curitiba office--"A well-localized outbreak, with no evidence of an epidemic." That is how the Paraná Secretariat of Health, in a note issued yesterday, characterized the disease that has attacked 10 persons in peripheral areas of Bocaiuva do Sul, near Curitiba, with 7 cases in one and the same family, 4 of them fatal.

According to the note, everything in the symptomatic picture of all of the patients indicates that the little outbreak--almost certainly of virosis--only affected the

seven members of the Talborda family, who were living in the Campo Novo locality. The last three cases, admitted to Oswaldo Cruz Hospital in Curitiba Sunday and Monday, exhibit a rather different clinical picture from the rest, and hardly require medical attention. According to the conclusions reached by the experts of the secretariat, no certainty of the same source exists except in the cases of João Taborda and his sons Isaias and Lucimar, who died.

While waiting for the arrival at Curitiba of a team from the Ministry to investigate the case, possibly Monday, the doctors concluded that the disease was almost surely transmitted by a virus. Thus it will only be possible with the results of the examinations being done in the Adolfo Lutz Institute in São Paulo and the Evandro Chagas Institute in Belém to isolate the virus and combat it starting with its source of propagation.

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## HOSPITAL BED CAPACITY DEEMED SUFFICIENT TO MEET NEEDS

Brasília CORREIO BRASILIENSE 21 Dec 80 p 14

[Text] The public hospital bed capacity--one third of the total existing in the country--should be sufficient to satisfy the demand created by Prev-Saúde [Preventive Health Care], according to an opinion expressed yesterday by Mozart de Abreu Lima, secretary general of the Ministry of Health and the chief official responsible for the working out of the program, the final text of which, finished this week end, will be turned over on Monday to Waldyr Arcoverde, minister of health, and Jair Soares, minister of welfare and social security.

According to Mozart de Abreu Lima, there is nothing to the criticism that the demand that will be created by expansion of the basic health services, reaching about 40 million Brazilians who are completely without medical assistance today, will not have conditions for being treated at the secondary and tertiary levels (hospital treatment), as this is a population that is also unprotected by the social welfare system.

Although he admits that this demand will really grow, in an initial phase, with the expansion of basic treatment, the secretary emphasizes that the establishment of Prev-Saúde shows precisely the opposite; i.e., the curative medical costs are reduced by prevention of the diseases at the primary level. He says, nevertheless, that assistance to the poor population, once started at the secondary and tertiary levels, will have no problem with absorption within Prev-Saúde itself, which, in addition to including all the INAMPS hospitals and those of the state secretariats of health, also provides for the installation of over 9,000 beds in places not now served.

Returning to a table compiled by the IBGE [Brazilian Institute of Geography and Statistics] on the number of existing hospital beds by regions for the year 1978, Mozart de Abreu Lima points out, for example, that in the northeast Prev-Saúde will have no problems in providing hospital treatment to the needy population, since of the total of 78,743 existing beds, 28,276 belong to the public sector, and in some states, such as Pernambuco, there is an equal number of beds at the disposal of the state and of the particular sector. The same situation is duplicated in the northern region, where there are 7,751 public beds and 6,436 private ones.

And as for the regions where the difference in the number of beds is clearly in favor of private enterprise, such as the south and southeast, in spite of explaining this situation as a result of the greater purchasing power of the population,

the secretary points out certain alternatives for the Prev-Saúde to provide assistance to the needy without resorting directly to private beds: almshouses, small hospitals established by cooperatives or unions, etc.

And he announces for 1981 the carrying out of surveys intended to result in including in the Prev-Saúde all the beds of the university hospitals of the country, which are now under the jurisdiction of the Ministry of Education and Culture. These beds were not included in the plan for Prev-Saúde, as he explained, "in order not to complicate the administrative part of the program."

Another point that is being considered, he stated, is up-dating the number of beds in the country through a new survey now being worked out by experts of the Ministry of Health on the basis of the IBGE report of 1978. According to that report there are 477,591 beds in the country, of which 124,806 are public and 352,785 private.

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GEOGRAPHIC CONDITIONS IMPEDE CONTROL OF MALARIA

Rio de Janeiro JORNAL DO BRASIL 17 Dec 80 p 12

[Text] What adds most to the difficulty of malaria control in Brazil is the geographical conditions. That statement was made by the researcher Leônidas de Melo Deane, head of the Department of Entomologia of the Osvaldo Cruz Institute, after receiving the 1980 Osvaldo Cruz Prize. He is considered one of the world's greatest authorities on malaria.

Leônidas Deane cited as an example the Amazonian region, where malaria is endemic; 95 percent of the cases are in that region, where the work of combatting mosquitoes is restricted to the houses, as it is hard to attack them in the forests and rivers.

Transmitters

According to Prof Leônidas Deane, no malaria eradication campaign can put an end to the mosquito that transmits the disease, since there are more than 50 species in Brazil. Another problem is controlling the movement of persons contaminated with the disease from places where malaria exists to places where the disease has not yet arrived.

He explained that the vaccine against malaria exists only experimentally, and that a Brazilian woman scientist, Rute Nussenzweig, is doing research on it at the University of New York, in the United States. But the vaccine cannot yet be produced commercially, as it is made from microbes from the salivary glands of the mosquitoes.

"Brazil already has sufficient means to control malaria: application of insecticides in the houses and of drugs that kill the parasites, both used both preventively and therapeutically. Of the four malarial parasites, one is malignant and can kill, but all forms of the disease have a cure," Prof Leônidas de Melo Deane concluded.

Upon receiving the Osvaldo Cruz Prize--a diploma and a gold medal--from the hands of Prof José Rodrigues Coura, vice president for research of the Osvaldo Cruz Foundation, Prof Leônidas Deane was also hailed by Prof Raimundo Muniz de Aragão on behalf of the Fiocruz Technical Council.

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CSO: 5400



# TYPHUS KILLS EIGHT IN ALAGOAS

Rio de Janeiro O GLOBO in Portuguese 13 Dec 80 p 8

[Text] Macei6 (O GLOBO)--An outbreak of fever has killed eight persons in the municipality of Maravilha, 260 kilometers from this capital, in the interior of Alagoas, and another five are in serious condition at the Tropical Diseases Hospital of Macei6. Maria Jos6 de Carvalho, prefect of Maravilha (PDS [Social Democratic Party]), attributed the outbreak to the contaminated water of the clay pits--reservoirs dug in the ground and intended for animals, where the people are quenching their thirst.

"In the slums the people compete for water with the cattle, horses, and other animals. Putrid, unfit water is consumed. And drawn to drink because the people have nowhere to go for water," the prefect explained. She fears that the outbreak will spread, because the lack of water "is not being compensated for with tank trucks, which are not serving the area satisfactorily."

Of a total of 11,000 inhabitants of the interior who are victims of the drought, only 1,200 residents of the municipality have been vaccinated against typhus. Maria Jos6 Carvalho said that the eight residents of the municipality who died in the typhus outbreak did not succeed in getting medical assistance because the disease took the local authorities by surprise.

She is in Macei6 accompanied by 15 residents of Maravilha--councilmen, teachers, business men, ranchers, and the tax collector of the municipality--to talk with Governor Guilherme Palmeira, but has only been able to see Vice Governor Theobaldo Barbosa.

Maria Jos6 asked for help for fear the outbreak may get worse, and the vice governor declared himself ready and willing to take her requests to the responsible agencies of the state administration. The vice governor's office chief, the journalist Jurandir Tobias, said that Mr Theobaldo Barbosa deplored the situation and said he would spare no efforts in trying to solve the problem. All of the persons concerned with the typhus epidemic thus far are tormented by it.

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## BRIEFS

**TWO MENINGITIS DEATHS REPORTED--Sorocaba** (By correspondent)--There have been two deaths from meningitis in the past 3 days. It is strongly suspected that the disease is of the meningococcic type, which is highly contagious and very lethal. Pedro Freire da Silva, 26 years of age, died yesterday after several days in the hospital. Dr Helio Geraldo de Carvalho, MD, who treated the patient, had diagnosed the case as meningitis but was unable to state--without more extensive tests--whether it was of the meningococcic type. The fluid was collected for use in the tests that will identify the type of meningitis. The other victim was Glauca de Almeida, an infant only 9 months old who died day before yesterday at Misericordia Public Hospital following several days of unsuccessful treatment. Informed of the two deaths, the Regional Public Health Division is in a state of readiness in view of the fact that 5 years ago this disease produced a major epidemic in Sorocaba. [Text] [Sao Paulo O ESTADO DE SAO PAULO in Portuguese 31 Dec 80 p 7] 10992

**VIROSIS STILL UNIDENTIFIED--Curitiba bureau**--Relieved by the fact that at least no new cases of the disease had been reported, the technicians of the Param Secretariat of Health are still awaiting the results of the tests being carried out in laboratories in Sao Paulo and Belem in an effort to identify the mysterious virosis that has killed four persons--and sent another five to the hospital--in the small municipality of Bocaluva do Sul, approximately 40 kilometers from Curitiba. After being considered completely out of danger, four persons who had remained in isolation in Oswaldo Cruz Hospital in Curitiba were discharged on 24 December so that they might spend Christmas at home. With the recovery of the most recent patients, the secretariat believes that the virosis did not in the end attain the degree anticipated and is now under control in the region. Secretary of Health Oscar Alves, who returned this week from a trip to the United States, disclosed that he had received the preliminary test results from the Adolfo Lutz Institute of Sao Paulo. He said that although the results were inconclusive they had at least ruled out the possibility that the arbovirus was the cause of the disease. The secretariat will have received the complete results within possibly 10 days from the Adolfo Lutz Institute and from the Evandro Chagas Institute in Belem. [Text] [Sao Paulo O ESTADO DE SAO PAULO in Portuguese 31 Dec 80 p 7] 10992

TB CONTROL PROGRAM IN JANUARY--The agreements concluded between the Ministry of Health, the INAMPS [National Institute for Social Security Medical Assistance], and the state secretariats of health for developing the TB control program will come into force on 1 January. With funds of 2 billion cruzeiros, the state secretariats will be entrusted with all the activities having to do with the treatment of the approximately 65,000 tuberculars of Brazil. The model to be followed in organizing the program will be the same as that used by the Secretariat of Health of Rio Grande do Sul, which, in 5 years, succeeded in significantly reducing the incidence of the disease and also reducing the costs of treatment. The goal set at the national level is to reduce the indices of incidence of tuberculosis by 5 percent a year, standardize the forms of ambulatory treatment, and reduce the period of medication of the patients from 1 year to 6 months. According to the figures of the National Division of Sanitatorial Pneumology, the northeastern and southeastern regions are most affected. [Text] [Brasilia CORREIO BRASILIENSE in Portuguese 21 Dec 80 p 14] 5588

CSO: 5400

## BRIEFS

**MYSTERY BRAIN DISEASE--Thanjavur, Dec 12:** A peculiar brain disease has been reported in Thanjavur district in Tamil Nadu, reports UWI. According to Dr P A Bhaskar, neurophysician, Thanjavur Medical College Hospital, the afflicted person, usually in the 1-15 age group, has combined involvement of the eye, brain and kidney. The disease is progressively crippling in nature and is believed to be common in families where consanguineous (close relative) marriages are arranged. The disorder was first noticed in a few cases in Madras and now in Thanjavur district. [Text] [Calcutta THE SUNDAY STATESMAN in English 14 Dec 80 p 7]

CSO: 5400

## SOUTH AFRICA

### BRIEFS

**NEW CHOLERA CASES**--The Department of Health has announced that 10 more cases of cholera have been reported. The new cases occurred in the eastern Transvaal and in Kangvane. This brings the total number of cholera cases to 1,092. [Text] [LD130412 Johannesburg Domestic Service in English 1700 GMT 9 Jan 81 CA]

**CHOLERA INCREASE**--The State Health Department fears an increase in cholera in the Pretoria-Witwatersrand-Vereeniging complex as the schools reopen and people return to work after Christmas holidaying in the Eastern Transvaal lowveld cholera epidemic area. A careful standby is being observed to take action if the incidence of the disease in these areas increases, it was learned on Monday. Meanwhile a further 13 cases of cholera or suspected cholera were reported by Monday, bringing the overall total since the outbreak of the disease closer to the 1 000 mark. A spokesman for the Department of Health said all 13-cases had been reported in the eastern Transvaal lowveld. The total death toll from the disease now stands at 17. However, the spokesman pointed out that more than nine out of every 10 people so far have contracted the disease were now back to full health. About three quarters of the cases were "contact" type infections--infections only discovered through laboratory tests in cases of people who in fact showed no symptoms and were not in fact ill. There was no need for a panic. A high proportion of the people who had contracted the disease had been cured, and in fact many had not even required treatment, he said. [Text] [Johannesburg THE CITIZEN in English 8 Jan 81 p 2]

CSO: 5400

BRIEFS

**CHOLERA CASES**—The Health Ministry rushed two of its officials on 4 January to Mannar, as reports indicated an increase in the number of positive cholera cases in the area. Health authorities stated that there have been four more positive cases reported from Mannar, bringing the total in that area to 43. While the number of deaths stand at 7, a total of 218 suspected cases have been reported over the weekend, these officials said. Meanwhile, the public health bacteriologist, and a bacteriologist from the medical research institute in Colombo are expected to investigate the source of contamination, and study the reason for the spread, the officials added. They are scheduled to return early this week. The increase brings the total number of positive cases since the outbreak in mid-November to 70, the officials stated. [Text] [Colombo SUN in English 6 Jan 81 p 1]

**CHOLERA IN MANNAR**—Colombo, December 16: The Sri Lanka health authorities are likely to declare Mannar on the north-west coast as "epidemic zone" following the detection of 25 cases of cholera last fortnight. Cholera has also been reported from adjoining Talaimannar. Talaimannar serves as the departure and entry point when the ferry service for India is in operation from Jaffar. [Text] [Bombay THE TIMES OF INDIA in English 17 Dec 80 p 20]

CSO: 5400

## TANZANIA

### BRIEFS

**CHOLERA DEATH, PREVENTIVE MEASURES**—Cholera killed one man at Chubi village, Kondoa District, last month, the Dodoma Regional Medical Officer, Ndugu J.A. Tesha, confirmed yesterday. Ndugu Tesha said medical assistants had been sent to the village and to Keikei village where signs of the killer disease had been detected. The cholera committee in the region meets today to discuss ways of combating the disease. Dodoma shares borders with cholera hit Singida Region. [Text] [Dar es Salaam DAILY NEWS in English 7 Jan 81 p 3]

**ZANZIBAR ANTIMALARIA MEASURES**—The Zanzibar Government has authorized the expenditure of 1,932,011 shilling for the purchase of antimalaria medicines which are expected to arrive in Zanzibar soon. Speaking to our reporter, the director of prevention in the Ministry of Health and Social Welfare, Ndugu Uledi (MITA), said although the government has a long-term plan of preventing malaria in the country, it nevertheless (?continues) to combat the serious situation that exists at present. It has been learned that at present 67 percent of the people of Zanzibar are infected with malaria. Ndugu Uledi added that the medicines that had been ordered were expected to arrive in the country last month but as a result of problems of consigning these medicines, they had failed to arrive as expected. However, the director said the government has prepared a firm plan to spray all parts of the islands in order to completely eradicate malaria in the country. [Text] [Zanzibar Domestic Service in Swahili 1600 GMT 17 Jan 81]

CSO: 5400



## **BRAZIL**

### **BRIEFS**

**AFRICAN SWINE FEVER ERADICATION**--Cornélio Procópio (from our correspondent)--  
"In 20,000 blood analyses done in Paraná, not a single case of African swine fever was found." This statement was made by Eugenio Stefanelo, director general of the Secretariat of Agriculture, at a meeting of the Association of Municipalities of Southwestern Paraná (AMSOP) held yesterday in Chopinzinho. According to him, the disease may be considered eradicated in the states of Paraná, Santa Catarina, and Rio Grande do Sul. "The negative results of the serological examinations are a green light for our pork exports," Stefanelo added. [Text] [São Paulo FOLHA DE SÃO PAULO in Portuguese 13 Dec 80 p 22] 5588

CSO: 5400

## PREVENTION, TREATMENT OF ANTHRAX

BK151027 Phnom Penh Domestic Service in Cambodian 1200 GMT 12 Jan 81

[Agriculture Ministry article on Black-Blood Disease or Anthrax]

[Excerpts] 1. Introduction: Black-blood disease is known in foreign languages as charbon or anthrax. It is a savagely infectious disease of animals, including man. It is one of the most dangerous of epidemics. This disease is most prevalent in lowlands, wet regions and water-logged regions and during high tides and the early rainy season. It particularly thrives in areas where the carcasses of animals killed by this disease are buried and in areas previously plagued by it. In Asia, this disease primarily exists in the delta regions and valleys.

Animals most susceptible to this disease are buffaloes, oxen, elephants, horses, pigs, goats and sheep. Some kinds of wild game may also contract this disease.

## 2. Symptoms and appearance of the carcasses:

A. Symptoms: In cattle, following 1 to 3 days of infection, symptoms can be seen as follows:

The first form--This is the most acute form known in foreign languages as the peracute form. This form may cause death within 2 or 3 hours. Victims of this show signs of high fever, trembling, rapid breathing, staggering, sweating, red eyes, a rise in body temperature from 41 to 42 degrees and bloody discharges from the nose, eyes, mouth and anus. Death rapidly follows these symptoms.

The second form--This form is less acute than the first form known in foreign languages as the acute form. Symptoms of this form are similar to the first form. In this form, there are traces of blood in the urine and evidence of swelling in the region of the shoulders, neck, lower abdomen and hips. Sometimes, swelling is evident with black necrotic centers all over the body. The swollen area is hot and causes pain when touched. It does not cave in when pressed. This second form causes death within a day or two.

In swine, this disease causes death within 12 to 36 hours. In general, swelling is evident in the area of the throat which causes difficult breathing and prevents the animals from eating or drinking. The skin in the throat also swells. The swollen area is hot and painful. Sometimes, the swelling spreads all over the snout and may cause diarrhea and pneumonia.

In horses, this disease is even more fatal than in swine. The victims have severe colic, fever, chills, and edematous swelling is evident all over the body particularly in the region of the lower abdomen. They sweat profusely and are found dead within a very short time.

2. Appearance: The carcasses of animals which have died as a result of black-blood disease indicate incomplete rigor mortis, rapid bloating and oozing of blood from the nostrils, ears, eyes and anus. Blood discharges can be found from the pores, and the spleen is greatly enlarged. The pancreas is enlarged four to eight-fold and is dark. After dissecting, the pancreas is found flaccid and black as lacquer. The blood is dark and thick and fails to clot rapidly as opposed to the blood of healthy animals. In swine, swelling is evident in the region of the neck and throat. In cattle, there are marks of bruising in the stomach and intestines.

3. Diagnosis: Animals affected by this disease are difficult to diagnose because it causes death so rapidly. Black-blood disease is evident when animals indicate signs of high fever, severe colic, blood-stained urine and excrement and swelling in the region of the lower abdomen.

In order to ascertain the diagnosis, the tip of the earlobes or a tibia of the animals should be sent to a laboratory for tests concerning the type of the bacteria which caused the disease.

4. Treatment: In the peracute form of the disease, treatment is not effective. In less severe cases, very satisfactory results can be obtained through the use of antianthrax serum with a dosage of 250 to 600 ml for a head of ox or buffalo and 80 to 100 ml for a pig. We are not in a position, however, to use this serum because of its high cost. Therefore, the prophylactic vaccination of antianthrax vaccines is the answer."

### 5. Preventive measures:

A. Daily hygienic measures for nonafflicted animals: Sufficient fodder should be provided to animals both in the rainy and dry seasons. Dried fodder such as grass or hay should be sprinkled with salted or sweetened water in order to give appetite to the animals. Keep the stables clean and avoid having mud or mire on the floors. At night, logs should be kept burning to drive off insects such as mosquitoes, horseflies and flies. The cattle should be washed frequently. Avoid overworking them, for overworked cattle become weak, lose weight and are easily contaminated.

B. Hygienic measures during disease outbreak: Sick animals should be separated from the herd and kept in quarantine for treatment. Stables should be kept continually clean by sprinkling cresyl, quicklime or boiling water. It is forbidden to keep healthy animals with sick ones, for this may spread the disease endlessly. Equipment such as cords, tether ropes, cages and (word indistinct) should also be disinfected.

C. Hygienic measures for dead animals: It is absolutely forbidden to skin the carcasses in order to prevent the bacillus anthracis from forming spores, for these spores may persist and retain their virulence in contaminated soil for 10 to 20 years. The carcasses should be buried in pits at least 2 meters deep. The graves should be sprinkled with cresyl water or quicklime. Another method is to cremate the carcasses before filling the pits up with dirt. Afterwards, fences should be erected around the graves with "black blood disease" signs posted on them. Hay and grass used as beds for the animals before they died should be burned. It is absolutely forbidden to consume the meat of the afflicted animals as it may be fatal. It is also absolutely forbidden to take grass from the graveyards of black blood disease victims as fodder for animals or to allow animals to graze in such areas even if the carcasses were buried there 20 years ago as the spores may still retain their virulence.

6. Black-blood disease in man: Man can be easily infected with this disease through the pores or alimentary ducts through consumption of afflicted meat or wounds incurred during the skinning of afflicted carcasses.

The symptoms in man are similar to those of animals. What is different is that in man small pimples form which develop into large vesicles with necrotic centers on the arms, face and sometimes all over the body.

Treatment in man: If this disease does not cause death immediately to an affected man, very satisfactory results can be obtained when he is treated in the early stages with the use of antibiotics such as penicillin, oxytetracycline, chloramphenicol, erythromycin or (word indistinct) administered at high dosages and given frequently every day. The patient should be immediately hospitalized.

## MAURITANIA

### MEASURES TO COMBAT RABIES OUTBREAK IN TENVERTESSE

Nouakchott CHAAB in French 25 Nov 80 pp 1, 8

[Text] The existence of a source of rabies at Tenvertesse, approximately 58 kilometers from Nouakchott, which is capable of threatening the capital, has just been established by an inspection team that was rushed to the site. This bit of news was revealed to the Mauritanian Press Agency by Dr Diagana Daidy, chief of zone number 1.

"In fact, just a few days ago, we observed the deaths of a sheep and 3 dromedaries in the Tenvertesse camp, located 58 kilometers south of Nouakchott" stated Dr Diagana.

Consequently, we dispatched to the site an inspection team led by the inspector of animal husbandry of the district. After conducting an analysis, the team came to the conclusion that, unfortunately, this was a case of rabies.

The chief of zone number 1 laid particular emphasis on the fact that this was a disease that can be transmitted to human beings and whose appearance and development could lead to troublesome consequences.

Dr Diagana Daidy added that the facts which were brought to the attention of the veterinary team were as follows: About 60 days ago, a mad dog made a night attack on the peaceful camp of Tenvertesse, attacking the herds in the tents and biting a number of them. The same dog later attacked a second camp, where he was killed. Twenty days later, a sheep showed signs of aggressiveness which quickly changed to paralysis and shortly after to death, according to the doctor.

Ten days after the death of this sheep, the same condition appeared in the case of three dromedaries which died due to paralysis of the pharynx, the tongue and the limbs.

Unfortunately, one of these was slaughtered and consumed. This resulted in three considerations to be taken into account. The first was possible contamination of individuals who handled the diseased animals. In such a case, the probability of contamination is quite high. Consequently, these persons (a shepherd and his assistant) should receive antirabies treatment.

Then there is the possibility that people who ate the meat might have contracted the disease. Although it is improbable that this would occur, since infection

of the digestive tract has never been experienced, there is still some chance of this taking place, so that it is desirable for these individuals to receive the same antirabies treatment, according to Dr Diagana.

The third consideration is the fact that the camp where the dog was killed is nowhere to be found. The camp has been moved and has not yet been found. Consequently, we do not know whether contact was made between the dog on the one hand and the animals and people on the other hand. This is why we are going to use Radio Mauritania to request the people of this camp to make themselves known as soon as possible and present themselves to the nearest medical station, stated Dr Diagana.

The chief of the first stock farming zone went on to say that, we notice that generally it is indispensable to administer a vaccination immediately, without any delay, since once rabies appears, it progresses rapidly and inevitably leads to death. Therefore, this vaccination must be performed immediately, before the virus (the agent which is responsible for producing the disease) can cause irreversible damage.

Dr Diagana mentioned that his department has already taken a number of steps, including a systematic campaign of destruction of all stray carnivorous animals in the region of Tenvertesse and the urban perimeter of Nouakchott. With regard to the urban perimeter of Nouakchott, it is important to point out that the immediate environs of the capital swarm with carnivorous animals (dogs and cats) which constitute the principal carriers of rabies.

To counteract this peril, we employ poisoned bait and firearms. We also conduct surveillance of contaminated domestic animals as well as antirabic treatment of individuals who may have been contaminated by contact with diseased animals.

With regard to application of these measures, the chief of the first stock farming zone asked the public to cooperate in the following ways: To furnish assistance to the teams whose job it is to scour the city and its suburbs for the purpose of accomplishing the abovementioned task, to observe a great deal of care with respect to corpses of animals which might escape collection by the teams and, in such a case, to quickly inform the stock inspection office located at Kaar of their existence, to isolate, for the duration of the campaign, vaccinated dogs who may only appear in public when muzzled and led by a leash.

Finally, Dr Diagana impressed the correspondent of the Mauritanian Press Agency with the need for vaccinating all the domestic carnivorous animals that their owner wished to retain.

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**RABIES CASES IN BEIJING CAUSING CONCERN**

Beijing BEIJING RIBAO in Chinese 13 Aug 80 p 1

[Text] Up to the end of July, more than 500 cases of rabies and suspected rabies in the city had been reported. Of these, five victims died. The rabies epidemic involved 114 brigades and streets of 59 communes of 11 districts (counties). There were cases in some streets such as Chaoyang and Haiding of the business district and the district of embassies. Rabies is a serious disease which can infect both men and animals (dogs, pigs, sheep, cats, etc). The disease will always occur after one is bitten by a rapid dog. In some cases when open wounds of men and animals are contaminated by the saliva of a healthy dog, rabies may also be induced. After a human being is infected, the incubation period is generally 2-3 weeks, during which time the symptoms are not obvious. However, when the disease breaks out it is very difficult to rescue the victim. The mortality rate is almost 100 percent.

Related departments pointed out that the basic measure of preventing rabies is the elimination of rabid dogs and strictly limiting the dog population. Raising dogs in the cities, the rural villages, and towns should be prohibited. Raising dogs in rural villages that are far away from cities should be discouraged. Those households that already have dogs should guarantee that their dogs do not leave their own courtyard. When anyone is bitten by a rapid dog, a large quantity of rabies vaccine should be immediately and continuously injected. The vaccination definitely has side-effects, however, and it can easily cause aftereffects as well.

For the purpose of preventing and stopping rabies, the Shijingshan District urged the masses of the city and the rural areas to launch a dog extermination movement. By 10 August, 613 dogs were disposed of by the 7 street offices and 1 commune.

During the dog extermination movement, the district repeatedly propagandized the significance of exterminating dogs. Teams were organized by the offices of the various streets and the rural communes to receive dogs for extermination. The teams went to the households which had dogs to inspect the dog extermination situation and to urge immediate action.



SNAIL PLAGUE INFESTS PASTURES, THREATENS WHEAT

Coastal Strip Affected

Perth THE WEST AUSTRALIAN in English 18 Nov 80 pp 1, 8

[Article by Michael Sinclair-Jones]

[Text] A severe snail infestation along a five-kilometre coastal strip between Dongara and Northhampton has wiped out pastures and threatens to ruin the wheat harvest on some properties.

Though grain receival depots have not reported any snail contamination problems in early wheat samples, Cooperative Bulk Handling is aware of the problem and is keeping a close watch.

CBH wants to bring in as big a harvest as possible in a drought year but it is worried that too much snail shell in the grain could jeopardise export contracts.

Farmers near Dongara say that after five years of drought this year's wet winter has brought more snails than have been seen before in the area.

On Mr Tim Bailey's 160ha farm, about 5km north of Dongara, a thick carpet of small white snails covers a paddock as if a hailstorm had passed over it.

The snails cling to every living thing in sight and lie in deep tangled masses in tractor ruts.

"When it rains, the whole paddock seems to move," Mr Bailey said.

In another paddock, where ripening wheat stands about a metre tall, every stalk in the crop has up to a dozen snails clinging to it.

Three deep

Along the nearby Geraldton Highway, guideposts on the verge are encrusted with snails up to three deep.

Another farmer, Mr Don Healy, took up an 80ha property nearby only this year, and it too is covered in snails.

"It seems to be isolated to a 5km strip running up the coast between Dongara and Northampton," Mr Healy said.

"The local farmers met an Agriculture Department official in Dongara two weeks ago but he wasn't able to help.

"Snail pellets cost \$1.20 a kilogram which make it prohibitive to use.

Mr Healy said: "We can spend money on aerial spraying but who will pay for spraying snails on all the crown land around her?

"The snails will continue to breed on land that isn't sprayed."

#### Medic

A third farmer near Dongara, Mr John Edwards, said that snails could completely eliminate flowering in medic pasture.

"I've lost flowering on 800ha and I'll be lucky to get one per cent feed," Mr Edwards said.

"Six or seven years ago snails covered only about a third of my land--now the infestation is total."

Mr Edwards said that two years ago CBH had rejected a batch of local grain because it had been contaminated with snails.

Though the ban had since been lifted, many local farmers were concerned at the extent of this year's infestation.

Mr Edwards said that the snails--known as Italian whites--had been imported into Australia in ballast in ships from Mediterranean countries.

They were particularly prolific in the Dongara area because lime in the alkaline soil enabled them to breed and form new shells.

#### U.S. Snail

Local growers hoped that the Agriculture Department could investigate the introduction of a species of American carnivorous snail to eradicate Italian whites. These snails were used in Californian citrus orchards.

However, the secretary of the State wheat industry research committee, Mr G. Lawrence, said there were no funds to pay for a visit to the U.S. by a WA entomologist. It would cost \$300 for the trip.

CBH's general manager, Mr E. J. U. Green, said that there was a maximum allowable tolerance of our pieces of snail shell, of any size, in a standard two kilogram wheat sample. There had been a severe snail infestation in WA more than 10 years ago. It had caused CBH to store the contaminated grain separately from the rest.

## Eradication Problems

Perth THE WEST AUSTRALIAN in English 20 Nov 80 p 18

[Text] Farmers who have a snail plague on properties in a 90km coastal strip north of Dongara can expect little help from science to overcome the problem.

State Government and independent informants said yesterday that there was no economic method of eradicating infestations of Italian white snails without harming the native environment.

The Department of Agriculture has suggested using chemicals and cultivation methods to control snails.

But chemicals are too expensive to use on broad-acre farms, cultivation methods cannot protect pastures and neither method prevents reinfestation of crops and pastures from adjoining vacant crown land.

Local farmers fear that too much snail shell in this year's harvest will cause some grain to be rejected.

### Idea Rejected

A third option favoured by Dongara farmers--the introduction of a predator snail from California to eat the Italian whites--was rejected yesterday by a University of WA zoologist, Mr M. Johnson.

He said that the introduction of a foreign predator to WA would be disastrous for the unique native snails.

Similar experiments in Hawaii and the Society Islands had failed.

A State Government spokesman said yesterday that scientists were still looking for a breakthrough in attempts to eradicate severe infestations of Italian white snails.

Similar plagues had occurred in 1965 and in 1971.

The spokesman said that though the problem was distressing for the farmers concerned, they had to realise that the problem was restricted to a relatively small area.

Funds for research into pest-eradication and other fields had to be spread across the entire industry.

Though chemical controls were expensive, farmers could also look at cultivation control by heavy grazing and burning off stubble.

But the spokesman admitted that this could not protect new pastures, or prevent reinfestation from adjacent snail-infested crownland. He said that more work needed to be done on investigations into biological controls--such as the introduction of Californian predator snails.

STRIPE RUST, GRUBS, DROUGHT HIT WHEAT HARVEST

Melbourne THE AGE in English 15 Nov 80 p 3

[Article by Ted Cavey]

[Text] Australia's wheat farmers, who have produced bumper harvests and record exports for the past two years, are in trouble.

This season the crop has been hit by drought, pests and stripe rust, a "new" fungal disease. The drought, which has laid bare huge cereal growing areas of New South Wales and Western Australia, has caused this year's wheat crop estimate to be cut from about 14 million tonnes to nine.

Until recently the Victorian crop, which escaped the drought, was in excellent shape. Yields seemed certain to be so high that Victoria would be Australia's top wheat-producing State.

But that was before stripe rust, discovered in Australia for the first time last year, spread. Worst hit is the highly productive Wimmera where the rich black soil plains produce up to 40 per cent of the State's crop.

Horsham agronomist Mr Mark Hyland said yesterday the stripe rust first affected the zenith wheat variety then spread to most other types. It was not known how much it would reduce the crop but in Britain where stripe rust has been common for years, yield losses of up to 50 per cent have been recorded.

The disease is forcing Victorian farmers to consider expensive fungicidal spraying to minimise its extent. The disease covers the plant in orange-yellow spores. It can be particularly devastating because it infects the head of the wheat and competes directly for the nutrients and moisture being supplied to the developing grain.

The State Government's Crops Research Institute at Horsham will send a plant pathologist to Britain and the United States next year to study stripe rust.

The director of the institute, Dr David Barber, said yesterday that the best hope of beating the disease was in breeding resistant wheat varieties. There were more than 6000 crossbred and breeding lines under study. Meanwhile, an infestation of voracious heliothis grubs is threatening many crops. Mr Hyland said the grubs were potentially damaging because they attacked the grain. However the infestation's affect on the crop would not be known for some weeks.



# PARASITES ATTACKING HARVESTS IN BOUENZA REGION, PREVENTIVE MEASURES

Brazzaville ETUMBA in French 14 Oct 80 p 14

[Article by Nkouka Nazaire, doctor-engineer in agricultural parasitology, researcher at ORSTOM (Overseas Scientific and Technical Research Office)]

[Excerpts] "I have just burned my five bags of parasite-infested ground-nuts," we were told by a peasant woman of Pandi III village in the Mouyondzi District.

These little creatures are really worth the trouble of talking about. All the peasants in Bouenza took us to task during our recent field investigation in this region. At Boko-Songho and MFouati, these creatures are hungry for kidney-beans. In Madingou District, it is "nkassa" (English peas) while at Mouyondzi ground-nuts are the commodity of choice for these insects. Maize is no better protected than the produce already mentioned, for the "bintsoutsous" have acquired a taste for it.

In all the villages, the peasants are finding their harvests to be without almost any commercial value, and for the most part unfit for human consumption because of the risk of poisoning presented by the produce that is heavily attacked by these parasites.

In light of the observations made in the field and the examination of the specimens we brought back to the laboratory, it has been established that what the Bouenza peasant calls "bintsoutsous" is a complex of clethrophages [translation unknown] insects, that is insects which live out partially or completely their whole biological cycle in stored produce.

In fact, in that region the insect chiefly responsible for these major losses (60 percent of losses in July 1980) is the beetle (Coleoptera). This insect attaches itself to the kidney-bean, the English pea, and the ground-nut in its shell, the substance of which is rapidly devoured, leaving a sort of pale dust (the frags of the Anglo-Saxons) on which may develop other germs which in some cases can be very dangerous to human and animal health.

These parasite-ridden grains are often the result of the bad seed which the peasants contrive to save for the following agricultural season. Under these conditions, it is easy to understand why the returns are dwindling. The presence of the Tribolium (Coleopteras) has also been discerned in the samples of



products set aside by the peasants but in reality this kind of insect as well as Sitophilus (Charancons) [Curculionidae parasite] are principally responsible for the damage to corn grains and cereal flours.

To explain the presence these predators in their harvests, the peasants accuse delays in marketing. That is not all, for certain peasants also think that the exploitation of potash from Makola was an activity that stimulated the rapid reproduction of these ravagers. This latter argument--which is both tendentious and devoid of scientific grounding--certainly does nothing to help understand the origin of the infestation, it goes without saying.

We ourselves think that a campaign to market these products conducted right after the harvest would significantly reduce the incidence of parasitism, but would still do nothing to combat the presence of the insects in question in the kidney-beans, ground-nuts, or English peas. For the damage beings in the fields. During storage, they are aggravated, especially in the ground-nut, by attacks of fungus and what the people of Bouenza call "Jacob" mice.

This aspect of the problem makes it possible to consider two stages of possible intervention:

- The phase of growing in the field.
- The post-harvest phase.

The merchant and the consumer at the end of the chain would be content with the second phase if the product delivered to the market is of a quality fit for consumption, that is, with an acceptably low level of parasitic attacks. This assumes the peasants will quite soon be provided with the appropriate insecticide products. For we are dealing with food commodities. So there cannot be any mistakes.

These pesticides exist, we can test them carefully in our environment. The price of oil has greatly contributed to increasing the cost of insecticides. Is the Bouenza peasant ready to meet these expenses?

If the answer is yes, then at the same time the party and the state through the research bodies and the marketing offices will find it in their interest to encourage, over the medium term, investigations on-site in the fields to shed light on the causative factors involved in the rapid spreading of the beetles in the kidney-beans and ground-nuts of the Bouenza region. For unquestionably this is the area of our country that is most concerned by these insects.

Such a step would not only help understand a biological mechanism, but would also help better to combat the damage at the source and eliminate the randomness of our "botanical medicine" treatments.

The commodities to be protected are legumes rich in proteins, and by virtue of this they merit particular attention as providers of better nutritional balance for the population. Moreover, the ground-nut is the principal source of raw material for the Nkayi oil-works (HUILKA) which, by this fact, must obtain from the peasant masses produce of good enough quality to enable it to deliver to the market a food oil which is free from organic impurities.

The seriousness of the observed damage to the harvests warrants proposing a series of short-term measures that could guarantee the success of the harvest in the upcoming agricultural seasons.

This is why the recent decision of the Political Bureau of the Congolese Labor Party [PCT] concerning the assignment of kidney-bean and ground-nut seed to the peasants for the 1980-1981 season assumes great importance as an incentive to agricultural productivity.

But as both the quantity and the quality of seed presently available within the nation are insufficient to answer to the real needs of the peasant masses, it is obvious that the state will have to import from abroad.

We want to insist here and now on the necessity of subjecting all seed brought into our country from abroad to pesticide treatment in order to avoid unpleasant, and especially onerous, surprises. In reality, our import and export pest control service is not adequately equipped to discover parasites existing in obscure forms in a timely way.

The storage sites and bagging operations should also be the object of more systematic attention as to their sanitary conditions.

The hoped-for shortening of marketing delays pre-supposes that the [Office of] Food Crops will have adequate transport resources and will diversify buying teams to match the gathering points for the particular agricultural products.

Finally, in the villages, educational sessions on agricultural hygiene should perhaps be intensified by the rural economy cadres who will be assisted by the party and the mass organizations.

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Feb. 4 1981